

Water, Science, and The Search for Common Ground

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Ladies and Gentlemen, friends and colleagues, distinguished participants in the First Natural Resources Law Conference: you do me great honor with your invitation to speak at this 1st Australasian Natural Resources Law & Policy Conference. It is also a special pleasure to be with people who are thoughtful and passionate about one of the toughest problems we face on our planet -- finding a wise balance between contending natural resource demands. My thought is to share some ideas with you about the use of mediation -- past, present, and future -- for complex water conflicts and focus much more specifically on the challenges of managing scientific and technical information.

My context, experience, and training are American and I hope you won't hold that against me as I offer some ruminations on what is happening there in the world of water mediation. While I think much of the American experience is relevant to Australia, please know that I am not here to thump the tub as a mediation missionary. Our historical, legal, and political imperatives differ in important ways. Nor would I ever suggest that mediation is a panacea or cure-all for the various problems all of us face as we play out our designated roles as water lawyers, scientists, and policy advocates. Nonetheless, I am cautiously optimistic that some of the current "third generation" thinking about mediating fevered water controversies will be useful.

The place to start is with some actual water conflicts. Imagine that, even as we are gathered here today, there are three other meetings going on in the rooms next door. In the first one, the staff of a water agency is talking jaw-to-jaw with resort developers, environmentalists, fishermen, and native peoples' organizations. The resort has applied for additional ground water to irrigate an 18-hole golf course which they argue is vital for the local economy. Environmentalists assert that the additional withdrawal will create a chloride interference with other nearby wells and ruin the aquifer. The native people at the table believe that any increases in pumping will diminish their rights by reducing the fresh water flowing into a near-shore brackish estuary. Fish, crabs, and edible seaweeds have been customarily gathered by their people at the shoreline for centuries.

In the second room, the Environmental Protection Agency and the Army Corps of Engineers are engaged in a prolonged discussion with state and community officials. Local government is demanding millions of dollars to clean up PCBs spilled from three discarded electrical capacitors. They believe that contaminants are migrating into the local groundwater supply and are the suspected culprit behind a cancer cluster. Local government wants more cleanups, compensation, and guarantees of future mitigation.

The agency responsible sees things different, of course. They say the spill was minimal, well below established actionable standards, that the problem has been remediated, and that there are other causations behind the cancers.

In the third room, farmers, developers, regulators, and environmentalists from the eastern and western slopes of a dividing range (along with a lot of lawyers) are trying to resolve a long-standing controversy that now seems destined for the courts. The dispute centers on an out-of-watershed transfer of 25 million gallons per day (mgd) of fresh water from one side of the mountain to the other. It invokes high emotions, thorny legal questions about the "public interest," and difficult planning problems over in-stream flow standards. Once again, conservation and development interests are pitted against each other in a vitriolic battle of newspaper articles, political campaigns, and legal actions.

All three of these cases are real situations that I have been involved in as a mediator, facilitator, or hearings officer. I have no doubt that they have fairly precise counterparts in Australia. I think, for example, of your disputes over deforestation and farm failures caused by the salting up of the Murray River(1), your dry-land salinity problem, the prospective commodification of tradable water rights, or the Snowy River rehabilitation issue that we will be talking about later today. In America, all of these cases are tiny motes of dust in the annual blizzard of 20-million lawsuits that blow through our state and federal adjudication bodies. Like divorces, torts, traffic matters, and almost every other kind of legal action, these water cases have plaintiffs and defendants, witnesses and evidence, winners and losers. But unlike these other matters, water cases have longer, wider and deeper public consequences.

Intrinsically, natural resource disputes, whether they are "upstream" issues that involve policy formation or "downstream" matters that involve enforcement and (2)compliance, pose powerful challenges to civil societies. In most cases, they focus on one or more of four key questions:

- * Who bears responsibility for something that allegedly went wrong environmentally?
- * How shall a current condition that is harmful be mitigated or remedied?
- * Will a proposed project, policy, or rule prove potentially deleterious to human or environmental health?
- * How should an environmental resource with its attendant issues of risks, costs, and benefits, be managed into the future?

But water resource disputes have other characteristics as well. They are often large in scale, broad in impacts, and laden with values that are at odds with each other. They are emotional to both "conscience" and "beneficiary" constituents. At issue in many cases are matters of culture, economics, justice, health, risk, power,

uncertainty, and professional, bureaucratic, and electoral politics. Political careers are sometimes created or destroyed because of water conflicts. And in some cases, the outcomes of specific conflicts have inter-generational, international, and global impacts.

Mark Twain, the author of *The Adventures of Huckleberry Finn* said it best when he was a young newspaper reporter wandering the American West at the turn of the century. "Whiskey is for drinking and water is for fighting." What he meant is that water comes to us from the past; that, it is a common pool resource that, in the abstract at least, belongs to us all; and that it somehow ought to be managed in ways that endure the resource into the future for unborn generations. All of us at this meeting know these cases well. They are the economic, environmental, and political fault lines that divide us as a civil society. And for good reason, they are the exact spots where many of us turn uncivil.

In the U.S. -- and I presume in Australia as well, although I will quickly defer to all of you on this point -- citizens and policymaker are hungry for ways to improve water discussions and water decisions. We need wiser outcomes that are conceptually sound, explicitly equitable, and that have practical staying power. Moreover, we need to reduce the high transaction costs, both human and financial, that are associated with water conflicts and we need to make decisions about water, streams, timber, pollution, fishing, and energy development that our children's children will not regret.

For the past 20 years I have been professionally organizing solution-seeking discussions about just these kinds of matters and I have seen some astounding things take place at the table, both good and bad. In general, I have learned three things.

The first is best summarized by Dave Berry, a humorist, who said, if you had to identify the one single reason why the human race has not achieved, and never will achieve, its full potential, that word would be "meetings." In my line of work, people dread and hate meetings because most of them are irritating, unproductive, and time-consuming disproportionate to what usually comes out. One of the great challenges of this new century is to improve the way we engage each other when we hold meetings about water controversies.

Second, productive dispute resolution meetings over water issues usually take place when we really do get the procedural and psychological aspects of a conflict organized right. I'm not talking about "feel-good" sessions but rather the more pragmatic processes of establishing reasonably tolerant working relationships. The good news is that much has been learned about how to do this. The bad news is that we still need to meet.

Third, good process and good working relationships are necessary but, by themselves, insufficient. We also must have very high quality information on the table. Ironically, it is usually impossible to meet this third challenge unless the first two elements -- good process and good working relationships - have been established. The three ingredients

of substance, process, and working relationships form a triangle and all three sides are critical and dependent on each other.

Some of you in this room have probably been involved in mediation proceedings and a few of you may be mediators yourselves. Most of you, I am hazarding, have not. So let me do a bit of definitional work. A mediator, unlike an arbitrator, has no power to force anyone to do anything. They are in the dispute to turbo-charge communications and negotiations. It's as simple as that. When I get asked to help with a dispute I am there only so long as all the parties tolerate my involvement. Anyone can stop the process at any time. Parties understand that my job is to help them reach agreement, or at least not let the failure to reach agreement happen for trivial reasons. If they decide to end the process without agreement, the process ends.

To the popular eye, trained to the task by the movie and television industries, mediation looks bold, exciting, and decisive. There is a big crisis. Tough and brilliant negotiators have agreed to a "sit-down" to work out a knotty problem. Lives and fortunes are at stake and they are struck. At an impasse. In the middle of all their complex bickering sits this shrewd, Solomonic character, the mediator. At the end of the day, if you watch how it is on television, we know he or she will pull some kind of rabbit out of the hat and create a powerful conclusion in which reason prevails over enmity. And it will all get done in 60-minutes.

Reality, of course, is very different. In the day-to-day work I do on water, forestry, pollution, construction, and commercial matters, a lot of what happens is not very exciting. In fact, some of it is excruciatingly slow and dull, a bit like "punctuated equilibrium"⁽³⁾ or a cricket match or a baseball game. Things bump along at a slow pace. They are going through the ritual of exchanging threats, arguing facts, and circuitously "to-ing" and "fro-ing" about their righteous positions. Then, suddenly, there is some fast and furious action. And that, of course, is precisely the time to be completely present and acutely attentive to the opportunities and dangers that are the yin and yang of all conflicts.

To my way of thinking, the mediation business is all about persuading people to sit still for an exploration of the "needs-behind-the-needs" and the upsides and downsides of all potential solutions. The challenge is not "getting to yes" as Roger Fisher and William Ury⁽⁴⁾ argue, but getting to "maybe." Once we have done that, then what usually ensues is mutually focused thinking and productive talk. The issues are more crisply organized, some of the drama and emotion have been ventilated, crucial missing information has been gathered, and parties have more fully clarified their interests, intents, and options. When this happens, it creates what my friend David Keller calls a "negotiatbry alchemy."

The "template" of generic moves that mediators work off of looks something like this:

Acquire the participation of all affected stakeholders and help and help organize the table so that all the right "voices" are present.

Establish protocol, forge working agreement on the issues to be resolved, and help ensure linkages to formal decision-making.

Organize productive and respectful exchanges of relevant information.

Push the parties to discern the underlying interests of all stakeholders and help them to discover, clarify, or create the greatest joint gains possible.

Assist the parties to make informed choices.

I emphasize the word "template" because there are many other steps and contingency steps that are shaped by the circumstances of individual cases. Hidden behind these six broad stages also lie many other artful "road maps" dealing with procedure, substance, relationships, diagnostics, process design, evaluative and facilitative approaches to intervention, convergent and divergent problem solving, and legal, scientific, economic, and social impasse breaking.

Let me illustrate what I am talking about. Fifteen years ago a legislator asked me if I would organize and mediate a stakeholder group to try and break a 10-year log jam over the creation of an administrative water code for the state of Hawaii. Up to that point, every water dispute went to court. Disagreements on the nature of the new law, the jurisdiction and composition of the agency, and the function of the code as a whole was contested. The stakeholder group that was assembled represented all of the players who had been fighting out their legal and political positions in 10-minute sound bites at the legislature, to no real effect. It was a bit like hand-to-hand combat through the streets of Paris on a dark night.

The initial challenge was threefold. My colleagues and I first had to identify key stakeholder groups and negotiate the conversion of those groups and voices into meaningful representation. Second, we had to test the interest and commitment to go forward and begin building some momentum for discussions. Third, we had to get preliminary agreements on the scope of the issues to be discussed and the procedural protocols and "table manners" that the parties would live by. The protocol document was 5-pages of single-spaced text.

Once started, this group developed a life of its own. As land owners, environmentalists, small and large farmers, local governments, and native Hawaiian groups engaged with each other, our job as mediators was to slow the jousting down, choreograph and moderate the meetings, prevent the process from getting sidetracked or bogged down, remind people privately of their real interests, and push people for progressively more thoughtful positions. In the end, resolution came because of the information that was traded, the brief respite of working trust that opponents enjoyed with traditional foes, and the political will that developed where none had previously existed.

While nobody should view these kinds of mediated approaches as a substitute for the traditional workings of government, the use of strategies based on "joint gains" problem solving, mediation, facilitation, and consensus-building offer promise for many more cases. In fact, with a bit of hindsight and some crystal ball gazing, I believe we are on the brink of a third wave of environmental mediation experimentation which may have important implications for the way water disputes are handled in the future. And for me, "wave" is the right metaphor since I live on a small island 2,500 miles away from the nearest land mass.

People who hang around the water a lot -- ship captains, surfers, board sailors, fishermen -- know that waves (including tidal waves) are driven by multiple geophysical forces and that they eventually come ashore in "sets." What we think of as "a wave" is usually part of a series of surges and swells, some of which merge together in breakers, others of which crest by themselves. Waves of social change are similar. New ideas evolve from small, sometimes isolated experiments and then radiate out. Some fade away. Others gather depth, power, and form. The reverberations of successful sets become the knowledge base for the next round of innovations.

The first wave of environmental mediation experiments began in the U.S. in the 1970s. It started with the interest and experience of a few individual practitioners from other fields and with the financial support of foundations excited about applying "alternative dispute resolution" to complex natural resource and planning problems. Early results (the Snoqualmie dam issue, the siting of Inter-State Highway 90, the National Coal Policy Project, the Brayton Point power plant conversion, to name but a few) showed great promise and spurred further interest in the core idea of using mediation and consensus building for complex resource and planning disputes.

By the early 1980s, this kind of mediation work (as distinguished from commercial, family, and community mediation) consisted of a small cadre of dedicated practitioners, a few books distilling cases, the first codifications of best practices, a column in a journal, a few conferences, and a growing list of questions.⁽⁵⁾ Issues abounded, among them, the appropriate role of mediation when there are power disparities, the ethical obligations of mediators, how success should be gauged, and when "neutrality" in environmental mediation is appropriate and inappropriate.

Most of this first wave of environmental mediation consisted of individual "supply side" experiments that were, in essence, local responses to local frustrations with specific issues. Previous innovations in managing environmental conflict -- environmental impact statements (EIS), public hearings, contested administrative case hearings -- had improved some forms of environmental decision making. Mediation seemed like a useful supplement. In the face of a high perceived need (but low actual demand), early mediation innovators sought to find appropriate cases in which the efficacy of mediation could be demonstrated.

They also sought to educate private and public sector leaders in the hope that some would become influential users and cheerleaders and build "the field" by doing research, studying the processes and results of mediation, and by developing new practice theories.

In the mid-1980s, a second wave washed ashore in the U.S. It occurred when government agencies entered the picture with their own programmatic interests. State, Federal, and administrative law judges took interest in mediation and, in a variety of application areas, began to incorporate ADR into pre-trial procedures. Agencies like the Environmental Protection Agency, the Mineral Management Service, and the National Park Service undertook extensive training programs and assigned personnel to coordinate or actually perform ADR services. Federal agencies passed new laws like Public Law 101-552, the Administrative Dispute Resolution Act (ADRA), and Public Law 101-648, the Negotiated Rulemaking Act (NRA), both of which authorized and encouraged agencies to use consensus building methods as a means of developing regulations. Even more self-consciously, the National Institute of Dispute Resolution began a systematic and highly successful effort aimed at installing "Office of Mediation" capacities inside state governments.(6)

The advent of second generation environmental mediation programs brought a significant shift in the conversation about the public and private advantages of mediation. Where the first "set" was focused on "supply-side" matters (the training of mediators, the timing of interventions, fee structuring, maintaining foundation support), the second wave was more preoccupied with the "demand-side" of the equation. Institutionalization also brought with it a whole new set of prospective issues: public sector contracting versus in-house mediators; case "gatekeeping"; roster management; and the building and maintaining of trilateral support from legislators, courts, and agency administrators.

Retrospectively, it is interesting to note how some of the early practice and policy distinctions that dominated discussions about environmental mediation have now blurred. For example, one early school of thinking (articulated by Gerald Cormick and others with labor-management backgrounds) held that mediation was something that should be applied fairly late in the trajectory of an environmental dispute and only when the parties have achieved "standing" and hit a clear impasse. Another view (most cogently argued by Larry Susskind) suggested that mediation could and should be applied as early and as broadly as possible and not just to "disputes," but to a variety of emergent planning and policy conflicts.

The two approaches -- late versus early intervention and "narrow" vs. "broad" problem formulation(7) - seemed to emphasize different styles of practice. In some contexts, the distinction looked like competitive bargaining on the one hand, and more cooperative but slower "consensus-building" on the other.

Practitioners of these approaches were sometimes distinguished as "hard core" or "soft core" mediators. The imagery of the hard core mediator was one of "arm twisting" and "deal-making." The imagery of the other was "touchy-feelie." Both approaches were often mischaracterized and, as it turned out, the distinction was a false dichotomy. Most good natural resource mediators were versatile in several approaches and could apply them to different kinds of challenges.

Today, though practices and procedures vary widely, a common set of conceptions links both of these early schools of thought along with the "First" and "Second" wave efforts described above. Indeed, whether the practice is called "mediation," "facilitation," or "consensus-building," the entire field is now generally grounded in a common philosophy that emphasizes good stakeholder representation, strong management of process, encouragement of interest-based bargaining, and the intelligent participation of government agencies, advocates, and business interests. The role of government is also more accepted as both an "actor" at the table and a third party broker of processes and outcomes. These principles and tenets are spelled out in a variety of publications that, taken together, can be said to comprise the accrued wisdom of the field.(8)

The next wave holds even greater promise. In addition to applying lessons learned from the past, third generation mediation programs will apply greater rigor to the problem solving process. They will offer a variety of discrete, well parsed, and well-defined services (conflict analysis, process design, system design, fact-finding, policy dialogues, assisted negotiations, short and long term information exchanges, etc.) and they will be positioned to work on "chains" of problems that are fundamentally similar but occurring in different places, i.e., problems over ground and surface water, wetlands management, pollution, property rights, and so on.

The real key to the next generation of programs and projects, however, will be a more avowedly self conscious philosophy of conflict resolution that is built on "mutual gains" problem solving, stronger analysis infused into the mediation process, and the ingraining of better information management in the face of contested science and scientific uncertainty. I believe the real "touchstone" for the future lies in a philosophy which seeks to enjoin science (which is all about truth-seeking) with politics (which is all about the constructive uses of power) in the service of better policymaking (which is all about the public "rules of the road"). Kai Lee calls this approach "civic science" and defines it as "irreducibly public in the way responsibilities are exercised, intrinsically technical, and open to learning from errors and profiting from success."(9) The outcomes of a true civic science should be environmental decisions that are at least as good, if not better than, what would happen otherwise in terms of their (1) conceptual soundness; (2) equity; (3) technical efficiency; and (4) practicability.(10)

Excellence in conflict resolution for water cases will derive from the way we meet the challenge of achieving powerful "substantive" solutions to tough problems. Good process and improved relationships -- the traditional measures of good mediation in other arenas, are necessary but insufficient for greater use of this method in water cases. Conventional mediation models are heavily weighted on communication skills (i.e., active listening, reframing, self-disclosing) and negotiation strategies (i.e., in-team organizing, shadow bargaining, single-text negotiating).(11) Indeed, standard mediation theology holds that the parties retain control over the substance of the dispute while mediators exert strong management over process and interpersonal working relations. Not surprisingly, improved "relationships" and better "process" are often reported as the major achievements and outcomes of many consensus processes. In water cases, we must do better. We must be able to show outcomes that are Pareto-optimal, better than what can be achieved in litigation, better than expectations, or better than some other party-established baseline. Please note here that I am not using the phrase "win-win" which I think is a misleading metaphor and which tends to obscure more than it reveals and raise up unreasonable expectations.

Finding the Pareto-efficient frontier (the "sweet spot") is the great quest in any dispute negotiation but it is a special challenge in water cases. Essentially, economist Vilfredo Pareto suggested that this kind of optimization occurs when no more joint gains are possible through skillful bargaining.(12) In other words, one side's bundle of gives and takes can only be enhanced at the expense of decreasing the other's. The key to achieving the highest possible theoretical joint gains, we have learned, involves considering all of the issues and outcomes together, discussing them serially, but holding off on making offers and counteroffers until all possibilities, solutions, and options have been discussed.

The meta-goal for water resource conflict resolution work is to achieve resolutions that can be judged more "distinguished" or "elegant" because all stakeholders have achieved a high level of benefit for the interests they represent, surpassed their BATNAs,(13) and not left potential additional joint gains on the table. When parties do not bargain efficiently, when they do not disclose critical information about the way issues are valued, or when they fail to propose potential outcomes across all issues, the best outcomes remain vague and elusive. The phenomenon of inefficient bargaining and gains left on the table permeates multi-issue water negotiations. That is why a good mediator changes the chemistry of what is going on when parties sit down to try and reach an amicable agreement.

I believe the next wave of resource mediation will also do a much better job of incorporating "good science." At core, disputes about the ecology and economics of human activities in natural systems almost always involve competing theories and methodologies for gauging impacts. The agreements,

settlements, resolutions, and understandings that emerge from mediated conflict resolution processes must therefore address competing epistemologies if the outcomes are to be judged positively. Policy and site-specific water disputes usually take place in the partial vacuum of an "unknown." The impacts of many proposed actions (using certain pesticides, for example, or withdrawing too much water, or engineering certain structures on the banks of rivers) are often unclear and may not ever be fully knowable. It is imperative, therefore, that the highest quality information and accurate understandings of error and uncertainty be intentionally made a part of the mediation.

Chris Moore has written extensively about how often natural resource conflicts are caused by a lack of information, misinformation, different methodologies, misunderstood notions of what is relevant, alternating or contested interpretations of data, and dissimilar assessment procedures. In Moore's view, joint-gains processes demand a well-orchestrated effort aimed at reaching agreement on what data are important, agreeing on the process by which data is to be collected, developing common criteria for data assessment, and reaching agreements on how third-party experts might be helpful in interpreting data.(14)

Larry Susskind, puts it even more directly. "Most dispute resolution processes," he and Jeff Cruikshank write, "involve forecasts of some sort. It may take months, or even years, before the wisdom of such forecasts and the accuracy of the assumptions upon which they were based can be ascertained."(15) Since waiting years or even decades to pass judgement on the efficacy of a particular substantive agreement is usually unacceptable, Susskind and Cruikshank suggest the use of "prospective hindsight," something that at first blush seems oxymoronic. A wise settlement, they argue, will move substantive problem-solving beyond the usual model of warring experts and "adversarial science." In doing so, a more cooperative approach will create specific interactions among the stakeholders that ultimately incorporate the best and most relevant methodologies. Susskind calls this the "wisdom" criteria for gauging outcomes. Have the parties focused on the salient issues and jointly utilized scientific and technical evidence regardless of which faction of stakeholders proposed it? If the answer is "yes," then the agreement is "wiser" than one that has failed to do this.

Is it actually possible to find a more "impartial" approach to science-intensive problems such as we face in water controversies? Over the last several decades the idea of "neutral science" has been steadily debunked and more or less abandoned. However, "good science" has not. "Science is not a collection of facts," says Timothy Ferris, "any more than opera is a collection of notes. It's a process, a way of thinking, a method based on a single insight -- that the degree to which an idea seems true has nothing to do with whether it is true, and that the way to distinguish factual ideas from false ones is to test them by experiment." (16)

Good science does not mean "perfect science." Rather, it exists on a continuum that ranges from highly controlled and repeatable experiments (stronger science), to statistical modeling (slightly weaker science), to quasi-experimental approaches that use selective sources of information (weaker still), to crude data amalgamation (even weaker), to aggregated and unaided subjective judgements (weaker yet), to the intuitions of a select or

small number of people (very weak). Stronger science tends to be more rigorous but there is also a tradeoff. Generally speaking, the more rigorous the mode of science, the more costly and time-consuming the inquiry and the less effective it may actually prove in dealing with complex, multi-variate social and cultural problems that require making a combined set of decisions that are at once economic, environmental, legal, and political in nature.

The challenge of doing a better job of the science in complex water cases is a "third wave" goal that is being taken very seriously. This month a source-document developed by a working group of environmental mediators will be jointly published by the United States Institute for Environmental Conflict Resolution, the Western Justice Foundation, and RESOLVE, Inc. (17) This document lists nearly sixty strategies and techniques for managing some thirty different science-related problems that crop up routinely in environmental cases. The document offers up the distilled experience of more than a hundred scientists, lawyers, and mediators who have all been deeply involved in the negotiated resolution of natural resource conflicts. We believe it will help further the use of joint gains processes and give greater confidence to those who are the participants and recipients of these procedures, the "mediated upon." It is, of course, just a start.

In bringing this work forward, we do not assume that technical and scientific information is the "be-all" and "end-all" of resource management conflicts. Parties bring to the table many different kinds of knowledge: "traditional" knowledge, "cultural" knowledge, "local" knowledge, and "remembered" knowledge. All have a place in the mix along with high quality legal, economic, and political knowledge. Nonetheless, we think advances in the life and social sciences, in computing power and data management, and in our ability to understand chaos, order, and systems will give those who follow much greater advantages as they struggle to make wise water decisions.

And the ultimate goal of all this mediating and facilitating? In the final analysis, it has something to do with that much overused concept "sustainability." Part of why I feel compelled to find new approaches to water conflicts is because the stakes keep rising and our conventional ways of doing the business of conflict resolution seem less and less germane to what is really going on.

We live in a time of unprecedented growth but the prosperity which we enjoy, and which the world aspires to, has been bought on credit. The bill is coming

due. David Quammen, a brilliant science writer, says the collective impact of 6-billion people (one-third of whom live in unequivocal poverty) is, not figuratively, but literally destroying the earth. Interestingly, in his mind, the greatest threats do not come from polluted air, acid rain, or the unraveling of the ozone layer over the Antarctic. The real threat is biological impoverishment: the reduction of the planet's gene pool.(18)

Our current species "die off," says Quammen, the one that has been going for the past 300 years, is now greater than any of the five previous extinctions, the last of which killed off 76% of the planet's mammals, amphibians, and dinosaurs in the Cretaceous. Today, we are losing the things that formed the commonweal and common ground beneath our feet for so long. It is not, of course, the end of the world nor the end of nature, but we also know that the extinctions are accelerating. Coral and forest destruction, habitat fragmentation, invasive species, and the ripple effects of key animals and plants disappearing from the food chain all have much to do with water. If there really is such a thing as a "web of life," then water is the connective gossamer that holds the filaments together and moves nutrients up, down, and across the various plant and animal regimes.

I tell you all this, not as an alarmist or as an environmental crusader, but as a willing and eager participant in the everyday water dramas that I see people of integrity and good confronting as they sit down at the table to solve problems. I worry for all of them. I fret about the water in the aquifers and the people who manage it. I worry about the fish and algae in our rivers and the people who lose their livelihoods and or entire way of life when a factory shuts down or a stream is unswimmable. The way we mediators have chosen to participate is the middle path, the teasing out of more elegant solutions and the forging of new balances.

Elusive as it may be, then, we mediators are in the business of trying to help create, through pragmatic actions, a sustainable enterprise in which economics is intimately connected to environment and grounded in a just and robust society. Finding the connective tissue between these three -- ecology, economics, and community -- is the great business of our time. Kai Lee calls sustainability the "map" on which the connections between science and politics are played out. "Adaptive management," he says, is the compass which keeps us from aimless wandering. And conflict resolution is the gyroscope which stabilizes us in the crosscurrents.

In the months and years ahead, holding steady to this purpose -- steering by this star - will serve us well as we ride the next wave of mutual gains problem solving. But there are other benefits as well. Law professor Charles Wilkinson puts it this way:

"We will always have disputes over land, water, wildlife, minerals, and power. Such raspings are inevitable and ultimately healthy in a colorful, dynamic, and individualistic society. Nevertheless, the dissenting parties often leave angry, determined to undercut the temporary solution bred of combativeness. Perhaps worse, the process tears at our sense of community; it leaves us more a loose collection of fractious subgroups than a coherent society with common hopes and dreams.... Consensus dispute resolution involving all affected basin parties has a core value, one separate from the worth of ending a confrontation for the time being. An agreement can glue former adversaries together in a continuing process jointly conceived. Consensus builds trusting communities. Agreements heal and strengthen places." (19)

1. "The Salt That Won't Run to the Sea," *The Economist*, p. 38, February 5, 2000.
2. "Upstream" and "Downstream" are concepts developed by Ms. Christine Carlson, Esq., Executive Director of the Policy Consensus Institute in Santa Fe, New Mexico.
3. See Stephen Jay Gould's evolutionary theory of "punctuated equilibrium" in *Dinosaur in a Haystack: Reflections in Natural History*, Harmony Books, 1996.
4. Roger Fisher and William Ury, *Getting To Yes*, 2nd Edition, Penguin, 1991.
5. *Resolving Environmental Disputes*, Gail Bingham, Washington: The Conservation Foundation, 1986.
6. See, for example, "Statewide Offices of Mediation" by William Drake in *Negotiation Journal*, 359, (1989), "State Offices of Mediation: Thoughts on the Evolution of a National Network", in *Kentucky Law Journal* by Peter Adler, Vol. 81, No. 4, 1992-3, and "NIDR's State Office of Mediation Experiment" by Lawrence Susskind in *Negotiation Journal*, 323, (1986).
7. For an excellent discussion on how issue definition affects intervention strategy, see "Mediator Orientations, Strategies and Techniques" by Leonard L. Riskin in *Alternatives*, Vol. 12, No. 9, September, 1994, pp. 111- 114.
8. For a good example of "First Generation" wisdom, see for example *Managing Public Conflict* by John Kennedy and Susan Carpenter, San Francisco: Jossey-Bass, 1988. For a good example of "Second Generation" wisdom, see *Best Practices for Government Agencies*, a report of the SPIDR Environment/Public Disputes Sector Critical Issues Committee, Society of Professionals in Dispute Resolution, January, 1997.
9. *Compass and Gyroscope*, Kai N. Lee, Washington, D.C.: Island Press, 1993, p. 161.

10. *Politicians, Bureaucrats, and the Consultant*, Garry D. Brewer, New York: Basic Books, 1973.

11. For a representative example of "process" and "relationship" oriented mediation models, see *When Push Comes to Shove* by Karl Slaikeu (San Francisco: Jossey-Bass, 1996) or *Conflict and Resolution* by Barbara Nagle Lechman (New York: Aspen Publishers, 1997). For a representative example of "process" and "relationship" oriented negotiation models, see *Fundamentals of Negotiation: A Guide for Environmental Professionals* by Jeffrey G. Miller and Thomas R. Colosi (Washington: ELI, 1989).

12. *The Art and Science of Negotiation*, Howard Raiffa, Cambridge: Harvard University Press, 1982, p. 139.

13. BATNA is a term of art and an acronym for "best alternative to a negotiated agreement". It derives from the work of Roger Fisher, William Ury, and others at the Harvard Program on Negotiation.

14. *The Mediation Process*, Christopher Moore, San Francisco: Jossey-Bass, p.27.

15. *Breaking the Impasse*, Larry Susskind & Jeffrey Cruikshank, New York: Basic Books, 1987, p. 28.

16. "Not Rocket Science" by Timothy Ferris, *The New Yorker*, July 20, 1998, p. 5.

17. "Managing Scientific and Technical Information in Environmental Cases: Principles and Practices for Mediators," (forthcoming in printed and website versions) by Peter S. Adler, Robert Barrett, Martha C. Bean, Juliana E. Birkhoff, Connie P. Ozawa, and Emily Rudin. U.S. Institute for Environmental Conflict Resolution, the Western Justice Foundation, and Resolve, Inc, April 2000.

18. David Quammen, "Planet of Weeds," in *Harper's Magazine*, October, 1998.

19. "Law and the American West: The Search for An Ethic of Place" by Charles F. Wilkinson in *University of Colorado Law Review*, Vol. 59, No. 3, 1988, pp. 409-410.

Biography

Peter S. Adler, Ph.D. recently returned from three weeks in Australia where he delivered this keynote address at the 1st Australasian Natural Resources Law & Policy Conference in Canberra and was was the Robertson Cuninghame Visiting Faculty at Earle Page College, University of New England, New South Wales, Australia. Adler is executive director of the Hawaii Justice Foundation and managing director of The Accord Group, a firm specializing in mediation,

creative decision-making, and consensus decision-making. He is also affiliated with the Public Disputes Network. Between 1979 and 1985 he served as the first executive director of the Neighborhood Justice Center, Inc. Between 1985 and 1992 he developed and then directed the Hawaii Supreme Court's Center for Alternative Dispute Resolution which specializes in the resolution of complex litigation matters and public policy disputes. His background includes two years as a Peace Corps volunteer in India (1966-1968) and two years as an instructor and associate director of the Hawaii Bound School (1977-1979). He has served as a court-appointed special master and is Past President of the Society of Professionals in Dispute Resolution (SPIDR). He has written articles on mediation and conflict management, is the author of *Beyond Paradise: Encounters in Hawaii Where the Tour Bus Never Runs*, Oxbow Press, 1993, and is a former contributing editor for *ISLANDS Magazine*. In 1999 he was a Senior Fellow at the Western Justice Center and a consultant to the U.S. Institute for Environmental Conflict Resolution.

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